

## Research Methods in the Social and Health Sciences: Making Research Decisions

Besides published books and magazines that have a digital equivalent, there are also digital textbooks, that are intended to serve as the text for a class and help in technology-based education.

The main reasons for people buying e-books are possibly lower prices, increased comfort (as they can buy from home or on the go with mobile devices) and a larger selection of titles. [5] With e-books, "electronic bookmarks make referencing easier, and e-book readers may allow the user to annotate pages." [6] "Although fiction and non-fiction books come in e-book formats, technical material is especially suited for e-book delivery because it can be digitally searched" for keywords. In addition, for programming books, code examples can be copied. [6] The amount of e-book reading is increasing in the U.S.; by 2014, 28% of adults had read an e-book, compared to 23% in 2013; and by 2014, 50% of American adults had an e-reader or a tablet, compared to 30% owning such devices in 2013. [7]

In the 2000s, there was a trend of print and e-book sales moving to the Internet, [ citation needed ] where readers buy traditional paper books and e-books on websites using e-commerce systems. With print books, readers are increasingly browsing through images of the covers of books on publisher or bookstore websites and selecting and ordering titles online; the paper books are then delivered to the reader by mail or another delivery service. With e-books, users can browse through titles online, and then when they select and order titles, the e-book can be sent to them online or the user can download the e-book. [3] By the early 2010s, e-books had begun to overtake hardcover by overall publication figures in the U.S. [4]

An ebook (short for electronic book), also known as an e-book or eBook, is a book publication made available in digital form, consisting of text, images, or both, readable on the flat-panel display of computers or other electronic devices. [1] Although sometimes defined as "an electronic version of a printed book", [2] some e-books exist without a printed equivalent. E-books can be read on dedicated e-reader devices, but also on any computer device that features a controllable viewing screen, including desktop computers, laptops, tablets and smartphones.

The Readies (1930) Edit

Some trace the concept of an e-reader, a device that would enable the user to view books on a screen, to a 1930 manifesto by Bob Brown, written after watching his first "talkie" (movie with sound). He titled it The Readies, playing off the idea of the "talkie". [8] In his book, Brown says movies have outmaneuvered the book by creating the "talkies" and, as a result, reading should find a new medium:

A simple reading machine which I can carry or move around, attach to any old electric light plug and read hundred-thousand-word novels in 10 minutes if I want to, and I want to.

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Brown's notion, however, was much more focused on reforming orthography and vocabulary, than on medium ("It is time to pull out the stopper" and begin "a bloody revolution of the word."): introducing huge numbers of portmanteau symbols to replace normal words, and punctuation to simulate action or movement; so it is not clear whether this fits into the history of "e-books" or not. Later e-readers never followed a model at all like Brown's; however, he correctly predicted the miniaturization and portability of e-readers. In an article, Jennifer Schuessler writes, "The machine, Brown argued, would allow readers to adjust the type size, avoid paper cuts and save trees, all while hastening the day when words could be 'recorded directly on the palpitating ether.'" [9] Brown believed that the e-reader (and his notions for changing text itself) would bring a completely new life to reading. Schuessler correlates it with a DJ spinning bits of old songs to create a beat or an entirely new song, as opposed to just a remix of a familiar song. [9]

### Inventor Edit

The inventor of the first e-book is not widely agreed upon. Some notable candidates include the following:

### Roberto Busa (1946–1970) Edit

The first e-book may be the Index Thomisticus, a heavily annotated electronic index to the works of Thomas Aquinas, prepared by Roberto Busa, S.J. beginning in 1946 and completed in the 1970s. [10] Although originally stored on a single computer, a distributable CD-ROM version appeared in 1989. However, this work is sometimes omitted; perhaps because the digitized text was a means for studying written texts and developing linguistic concordances, rather than as a published edition in its own right. [11] In 2005, the Index was published online. [12]

### Ángela Ruiz Robles (1949) Edit

In 1949, Ángela Ruiz Robles, a teacher from Ferrol, Spain, patented the Enciclopedia Mecánica, or the Mechanical Encyclopedia, a mechanical device which operated on compressed air where text and graphics were contained on spools that users would load onto rotating spindles. Her idea was to create a device which would decrease the number of books that her pupils carried to school. The final device was planned to include audio recordings, a magnifying glass, a calculator and an electric light for night reading. [13] Her device was never put into production but a prototype is kept in the National Museum of Science and Technology in A Coruña. [14]

Douglas Engelbart and Andries van Dam (1960s) Edit

Alternatively, some historians consider electronic books to have started in the early 1960s, with the NLS project headed by Douglas Engelbart at Stanford Research Institute (SRI), and the Hypertext Editing System and FRESS projects headed by Andries van Dam at Brown University.[15][16][17] FRESS documents ran on IBM mainframes and were structure-oriented rather than line-oriented; they were formatted dynamically for different users, display hardware, window sizes, and so on, as well as having automated tables of contents, indexes, and so on. All these systems also provided extensive hyperlinking, graphics, and other capabilities. Van Dam is generally thought to have coined the term "electronic book",[18][19] and it was established enough to use in an article title by 1985.[20]

FRESS was used for reading extensive primary texts online, as well as for annotation and online discussions in several courses, including English Poetry and Biochemistry. Brown's faculty made extensive use of FRESS; for example the philosopher Roderick Chisholm used it to produce several of his books. Thus in the Preface to *Person and Object* (1979) he writes "The book would not have been completed without the epoch-making File Retrieval and Editing System..."[21] Brown University's work in electronic book systems continued for many years, including US Navy funded projects for electronic repair-manuals;[22] a large-scale distributed hypermedia system known as InterMedia;[23] a spinoff company Electronic Book Technologies that built DynaText, the first SGML-based e-reader system; and the Scholarly Technology Group's extensive work on the Open eBook standard.

Michael S. Hart (1971) Edit

Despite the extensive earlier history, several publications report Michael S. Hart as the inventor of the e-book.[24][25][26] In 1971, the operators of the Xerox Sigma V mainframe at the University of Illinois gave Hart extensive computer-time. Seeking a worthy use of this resource, he created his first electronic document by typing the United States Declaration of Independence into a computer in plain text.[27] Hart planned to create documents using plain text to make them as easy as possible to download and view on devices. After Hart first adapted the U.S. Declaration of Independence into an electronic document in 1971, Project Gutenberg was launched to create electronic copies of more texts, especially books.[27]

Early hardware implementations Edit

Dedicated hardware devices for ebook reading began to appear in the 70s and 80s, in addition to the mainframe and laptop solutions, and collections of data per se. One early e-book implementation was the desktop prototype for a proposed notebook computer, the Dynabook, in the 1970s at PARC: a general-purpose portable personal computer capable of displaying books for reading.[28] In 1980, the U.S. Department of Defense began concept development for a portable electronic delivery device for technical maintenance information called project PEAM, the Portable Electronic Aid for Maintenance. Detailed specifications were completed in FY 1981/82, and prototype development began with Texas Instruments that same year. Four prototypes were produced and delivered for testing in 1986, and tests were completed in 1987. The final summary report was produced in 1989 by the U.S. Army Research Institute for the Behavioral and Social Sciences, authored by Robert Wisher and J. Peter Kincaid.[29] A patent application for the PEAM device,[30] titled "Apparatus for delivering procedural type instructions", was submitted by Texas Instruments on December 4, 1985, listing John K. Harkins and Stephen H. Morriss as inventors.

The first portable electronic book, the US Department of Defense's "Personal Electronic Aid to Maintenance"

In 1992, Sony launched the Data Discman, an electronic book reader that could read e-books that were stored on CDs. One of the electronic publications that could be played on the Data Discman was called The Library of the Future.[31] Early e-books were generally written for specialty areas and a limited audience, meant to be read only by small and devoted interest groups. The scope of the subject matter of these e-books included technical manuals for hardware, manufacturing techniques, and other subjects.[citation needed] In the 1990s, the general availability of the Internet made transferring electronic files much easier, including e-books.[citation needed]

In 1993, Paul Baim released a freeware HyperCard stack, called EBook, that allowed easy import of any text file to create a pageable version similar to an electronic paperback book. A notable feature was automatic tracking of the last page read so that on returning to the 'book' you were taken back to where you had previously left off reading. The title of this stack may have helped popularize the term 'ebook'.[32]

E-book formats Edit

Reading an e-book on a third-generation Kindle

As e-book formats emerged and proliferated,[citation needed] some garnered support from major software companies, such

as Adobe with its PDF format that was introduced in 1993.[33] Unlike most other formats, PDF documents are generally tied to a particular dimension and layout, rather than adjusting dynamically to the current page, window, or another size. Different e-reader devices followed different formats, most of them accepting books in only one or a few formats, thereby fragmenting the e-book market even more. Due to the exclusiveness and limited readerships of e-books, the fractured market of independent publishers and specialty authors lacked consensus regarding a standard for packaging and selling e-books.[citation needed]

Meanwhile, scholars formed the Text Encoding Initiative, which developed consensus guidelines for encoding books and other materials of scholarly interest for a variety of analytic uses as well as reading, and countless literary and other works have been developed using the TEI approach. In the late 1990s, a consortium formed to develop the Open eBook format as a way for authors and publishers to provide a single source-document which many book-reading software and hardware platforms could handle. Several scholars from the TEI were closely involved in the early development of Open eBook [1], including Allen Renear, Elli Mylonas, and Steven DeRose, all from Brown. Focused on portability, Open eBook as defined required subsets of XHTML and CSS; a set of multimedia formats (others could be used, but there must also be a fallback in one of the required formats), and an XML schema for a "manifest", to list the components of a given e-book, identify a table of contents, cover art, and so on.[citation needed] This format led to the open format EPUB. Google Books has converted many public domain works to this open format.[34]

In 2010, e-books continued to gain in their own specialist and underground markets.[citation needed] Many e-book publishers began distributing books that were in the public domain.[citation needed] At the same time, authors with books that were not accepted by publishers offered their works online so they could be seen by others. Unofficial (and occasionally unauthorized) catalogs of books became available on the web, and sites devoted to e-books began disseminating information about e-books to the public.[35] Nearly two-thirds of the U.S. Consumer e-book publishing market are controlled by the "Big Five". The "Big Five" publishers are: Hachette, HarperCollins, Macmillan, Penguin Random House and Simon & Schuster.[36]

#### Libraries Edit

U.S. libraries began to offer free e-books to the public in 1998 through their websites and associated services,[37] although the e-books were primarily scholarly, technical or professional in nature, and could not be downloaded. In 2003, libraries began offering free downloadable popular fiction and non-fiction e-books to the public, launching an

e-book lending model that worked much more successfully for public libraries.[38] The number of library e-book distributors and lending models continued to increase over the next few years. From 2005 to 2008, libraries experienced a 60% growth in e-book collections.[39] In 2010, a Public Library Funding and Technology Access Study by the American Library Association[40] found that 66% of public libraries in the U.S. were offering e-books,[41] and a large movement in the library industry began to seriously examine the issues relating to e-book lending, acknowledging a "tipping point" when e-book technology would become widely established.[42] Content from public libraries can be downloaded to e-readers using application software like Overdrive and Hoopla.[43]

The U.S. National Library of Medicine has for many years provided PubMed, a comprehensive bibliography of medical literature. In early 2000, NLM set up the PubMed Central repository, which stores full-text e-book versions of many medical journal articles and books, through cooperation with scholars and publishers in the field. Pubmed Central also now provides archiving and access to over 4.1 million articles, maintained in a standard XML format known as the Journal Article Tag Suite (or "JATS").

Despite the widespread adoption of e-books, some publishers and authors have not endorsed the concept of electronic publishing, citing issues with user demand, copyright infringement and challenges with proprietary devices and systems.[44] In a survey of interlibrary loan (ILL) librarians, it was found that 92% of libraries held e-books in their collections and that 27% of those libraries had negotiated ILL rights for some of their e-books. This survey found significant barriers to conducting interlibrary loan for e-books.[45] Patron-driven acquisition (PDA) has been available for several years in public libraries, allowing vendors to streamline the acquisition process by offering to match a library's selection profile to the vendor's e-book titles.[46] The library's catalog is then populated with records for all of the e-books that match the profile.[46] The decision to purchase the title is left to the patrons, although the library can set purchasing conditions such as a maximum price and purchasing caps so that the dedicated funds are spent according to the library's budget.[46] The 2012 meeting of the Association of American University Presses included a panel on the PDA of books produced by university presses, based on a preliminary report by Joseph Esposito, a digital publishing consultant who has studied the implications of PDA with a grant from the Andrew W. Mellon Foundation.[47]

#### Challenges Edit

Although the demand for e-book services in libraries has grown in the first two decades of the 21st century,

difficulties keep libraries from providing some e-books to clients.[48] Publishers will sell e-books to libraries, but in most cases they will only give libraries a limited license to the title, meaning that the library does not own the electronic text but is allowed to circulate it for either a certain period of time, or a certain number of check outs, or both. When a library purchases an e-book license, the cost is at least three times what it would be for a personal consumer.[48] E-book licenses are more expensive than paper-format editions because publishers are concerned that an e-book that is sold could theoretically be read and/or checked out by a huge number of users, potentially damaging sales. However, some studies have found the opposite effect to be true (for example, Hilton and Wikey 2010).[49]

#### Archival storage Edit

The Internet Archive and Open Library offer more than six million fully accessible public domain e-books. Project Gutenberg has over 52,000 freely available public domain e-books.

#### Dedicated hardware readers and mobile software Edit

##### The BEBook e-reader

An e-reader, also called an e-book reader or e-book device, is a mobile electronic device that is designed primarily for the purpose of reading e-books and digital periodicals. An e-reader is similar in form, but more limited in purpose than a tablet. In comparison to tablets, many e-readers are better than tablets for reading because they are more portable, have better readability in sunlight and have longer battery life.[50] In July 2010, online bookseller Amazon.com reported sales of e-books for its proprietary Kindle outnumbered sales of hardcover books for the first time ever during the second quarter of 2010, saying it sold 140 e-books for every 100 hardcover books, including hardcovers for which there was no digital edition.[51] By January 2011, e-book sales at Amazon had surpassed its paperback sales.[52] In the overall US market, paperback book sales are still much larger than either hardcover or e-book; the American Publishing Association estimated e-books represented 8.5% of sales as of mid-2010, up from 3% a year before.[53] At the end of the first quarter of 2012, e-book sales in the United States surpassed hardcover book sales for the first time.[4]

Until late 2013, use of an e-reader was not allowed on airplanes during takeoff and landing by the FAA.[54] In November 2013, the FAA allowed use of e-readers on airplanes at all times if it is in Airplane Mode, which means all

radios turned off, and Europe followed this guidance the next month.[55] In 2014, The New York Times predicted that by 2018 e-books will make up over 50% of total consumer publishing revenue in the United States and Great Britain.[56]

Applications Edit

Reading applications on different devices

Some of the major book retailers and multiple third-party developers offer free (and in some third-party cases, premium paid) e-reader software applications (apps) for the Mac and PC computers as well as for Android, Blackberry, iPad, iPhone, Windows Phone and Palm OS devices to allow the reading of e-books and other documents independently of dedicated e-book devices. Examples are apps for the Amazon Kindle,[57] Barnes & Noble Nook, iBooks, Kobo eReader and Sony Reader.

Timeline Edit

Before the 1980s Edit

c. 1949

Ángela Ruiz Robles patents the idea of the electronic book, called the Mechanical Encyclopedia, in Galicia, Spain.

Roberto Busa begins planning the Index Thomisticus.[11]

c. 1963

c. 1965

1971

Michael S. Hart types the US Declaration of Independence into a computer to create the first e-book available on the Internet and launches Project Gutenberg in order to create electronic copies of more books.[27]



c. 1979

Roberto Busa finishes the Index Thomisticus, a complete lemmatisation of the 56 printed volumes of Saint Thomas Aquinas and of a few related authors.[58]

1980s and 1990s Edit

1986

Judy Malloy writes and programmes the first online hypertext fiction, Uncle Roger, with links that take the narrative in different directions depending on the reader's choice.[59]

1989

Franklin Computer releases an electronic edition of the Bible that can only be read with a stand-alone device.[60]

1990

1991

1992 The DD-8 Data Discman

F. Crugnola and I. Rigamonti design and create the first e-reader, called Incipit, as a thesis project at the Polytechnic University of Milan. [65] [66]

Apple starts using its DocViewer[67] format "to distribute documentation to developers in an electronic form",[68] which effectively meant Inside Macintosh books.

1993

1994

1995

Online poet Alexis Kirke discusses the need for wireless internet electronic paper readers in his article "The Emuse". [74]

1996

1997

1998 Bookeen's Cybook Gen1

NuvoMedia releases the first handheld e-reader, the Rocket eBook. [78]

SoftBook launches its SoftBook reader. This e-reader, with expandable storage, could store up to 100,000 pages of content, including text, graphics and pictures. [79]

The Cybook is sold and manufactured at first by Cytale (1998â€"2003) and later by Bookeen.

1999

2000s Edit

2000

2001

Adobe releases Adobe Acrobat Reader 5.0 allowing users to underline, take notes and bookmark.

2002

Palm, Inc and OverDrive, Inc make Palm Reader e-books available worldwide, offering over 5,000 e-books in several

languages; these could be read on Palm PDAs or using a computer application. [87]

Random House and HarperCollins start to sell digital versions of their titles in English.[ citation needed ]

2004

Sony Librie, the first e-reader using an E Ink display is released; it has a six-inch screen. [88]

Google announces plans to digitize the holdings of several major libraries,[89] as part of what would later be called the Google Books Library Project.

2005

2006

Sony Reader PRS-500, with an E Ink screen and two weeks of battery life, is released. [92]

LibreDigital launches BookBrowse as an online reader for publisher content.[ citation needed ]

2007 Size comparison of the Kindle 2 with the larger Kindle DX

2008

Adobe and Sony agree to share their technologies (Adobe Reader and DRM) with each other. [ citation needed ]

Sony sells the Sony Reader PRS-505 in UK and France.

2009

Bookeen releases the Cybook Opus in the US and Europe.

Sony releases the Reader Pocket Edition and Reader Touch Edition.

Amazon releases the Kindle 2 that includes a text-to-speech feature.

Amazon releases the Kindle DX that has a 9.7-inch screen in the U.S.

Barnes & Noble releases the Nook e-reader in the US.

Amazon releases the Kindle for PC application in late 2009, making the Kindle Store library available for the first time outside Kindle hardware.[96]

2010s Edit

2010

2011

2012

2013

April â€" Kobo releases the Kobo Aura HD with a 6.8-inch screen, which is larger than the current models produced by its US competitors. [117]

May â€" Mofibo launches the first Scandinavian unlimited access e-book subscription service. [118]

June â€" Association of American Publishers announces that e-books now account for about 20% of book sales. Barnes & Noble estimates it has a 27% share of the US e-book market. [119]

June â€" Barnes & Noble announces its intention to discontinue manufacturing Nook tablets, but to continue producing black-and-white e-readers such as the Nook Simple Touch. [119]

June â€" Apple executive Keith Moerer testifies in the e-book price fixing trial that the iBookstore held approximately 20% of the e-book market share in the United States within the months after launch â€" a figure that Publishers Weekly reports is roughly double many of the previous estimates made by third parties. Moerer further testified that iBookstore acquired about an additional 20% by adding Random House in 2011.[120]

A Kobo Aura's settings menu

Five major US e-book publishers, as part of their settlement of a price-fixing suit, are ordered to refund about \$3 for every electronic copy of a New York Times best-seller that they sold from April 2010 to May 2012. [107] This could equal \$160 million in settlement charges.

This could equal \$160 million in settlement charges. Barnes & Noble releases the Nook Glowlight, which has a 6-inch touchscreen using E Ink Pearl and Regal, with built-in front LED lights.

July â€" US District Court Judge Denise Cote finds Apple guilty of conspiring to raise the retail price of e-books and schedules a trial in 2014 to determine damages. [121]

August â€" Kobo releases the Kobo Aura, a baseline touchscreen six-inch e-reader.

September â€" Oyster launches its unlimited access e-book subscription service. [122]

November â€" US District Judge Chin sides with Google in Authors Guild v. Google , citing fair use. [123] The authors said they would appeal. [124]

, citing fair use. The authors said they would appeal. December â€" Scribd launches the first public unlimited access subscription service for e-books.[125]

2014

April â€" Kobo releases the Aura Hâ,,0, the world's first waterproof commercially produced e-reader. [126]

June â€" US District Court Judge Cote grants class action certification to plaintiffs in a lawsuit over Apple's alleged e-book price conspiracy; the plaintiffs are seeking \$840 million in damages. [127] Apple appeals the decision.

Apple appeals the decision. June â€" Apple settles the e-book antitrust case that alleged Apple conspired to e-book price fixing out of court with the States; however if Judge Cote's ruling is overturned in appeal the settlement would be reversed. [128]

July â€" Amazon launches Kindle Unlimited, an unlimited-access e-book and audiobook subscription service.[129]

2015

June â€" The 2nd US Circuit Court of Appeals with a 2:1 vote concurs with Judge Cote that Apple conspired to e-book price fixing and violated federal antitrust law. [130] Apple appealed the decision.

Apple appealed the decision. June â€" Amazon releases the Kindle Paperwhite (3rd generation) that is the first e-reader to feature Bookerly, a font exclusively designed for e-readers. [131]

September â€" Oyster announces its unlimited access e-book subscription service would be shut down in early 2016 and that it would be acquired by Google. [132]

September â€" Malaysian e-book company, e-Sentral, introduces for the first time geo-location distribution technology for e-books via bluetooth beacon. It was first demonstrated in a large scale at Kuala Lumpur International Airport. [133]

October â€" Amazon releases the Kindle Voyage that has a 6-inch, 300 ppi E Ink Carta HD display, which was the highest resolution and contrast available in e-readers as of 2014. [134] It also features adaptive LED lights and page turn sensors on the sides of the device.

It also features adaptive LED lights and page turn sensors on the sides of the device. October â€" Barnes & Noble releases the Glowlight Plus, its first waterproof e-reader. [135]

October â€" The US appeals court sides with Google instead of the Authors' Guild, declaring that Google did not violate copyright law in its book scanning project. [136]

December â€" Playster launches an unlimited-access subscription service including e-books and audiobooks. [137]

By the end of 2015, Google Books scanned more than 25 million books. [9]

By 2015, over 70 million e-readers had been shipped worldwide.[9]

2016

March â€" The Supreme Court of the United States declines to hear Apple's appeal against the court's decision of July 2013 that the company conspired to e-book price fixing, hence the previous court decision stands, obliging Apple to pay \$450 million. [138]

April â€" The Supreme Court declines to hear the Authors Guild's appeal of its book scanning case, so the lower court's decision stands; the result means that Google can scan library books and display snippets in search results without violating US copyright law. [139]

April â€" Amazon releases the Kindle Oasis, its first e-reader in five years to have physical page turn buttons and, as a premium product, it includes a leather case with a battery inside; without including the case, it is the lightest e-reader on the market to date. [140]

August â€" Kobo releases the Aura One, the first commercial e-reader with a 7.8-inch E Ink Carta HD display. [141]

By the end of the year, smartphones and tablets have both individually overtaken e-readers as methods for reading an e-book, and paperback book sales are now higher than e-book sales.[142]

2017

February â€" The Association of American Publishers releases data showing that the US adult e-book market declined

16.9% in the first nine months of 2016 over the same period in 2015, and Nielsen Book determines that the e-book market had an overall total decline of 16% in 2016 over 2015, including all age groups. [143] This decline is partly due to widespread e-book price increases by major publishers, which has increased the average e-book price from \$6 to almost \$10. [144]

This decline is partly due to widespread e-book price increases by major publishers, which has increased the average e-book price from \$6 to almost \$10. February â€” The US version of Kindle Unlimited comprises more than 1.5 million titles, including over 290,000 foreign language titles. [145]

March â€” The Guardian reports that sales of physical books are outperforming digital titles in the UK, since it can be cheaper to buy the physical version of a book when compared to the digital version due to Amazon's deal with publishers that allows agency pricing. [142]

reports that sales of physical books are outperforming digital titles in the UK, since it can be cheaper to buy the physical version of a book when compared to the digital version due to Amazon's deal with publishers that allows agency pricing. April â€” The Los Angeles Times reports that, in 2016, sales of hardcover books were higher than e-books for the first time in five years. [144]

reports that, in 2016, sales of hardcover books were higher than e-books for the first time in five years. October â€” Amazon releases the Oasis 2, the first Kindle to be IPX8 rated meaning that it is water resistant up to 2 meters for up to 60 minutes; it is also the first Kindle to enable white text on a black background, a feature that may be helpful for nighttime reading.[146]

2018

January â€” U.S. public libraries report record-breaking borrowing of OverDrive e-books over the course of the year, with more than 274 million e-books loaned to card holders, a 22% increase over the 2017 figure. [147]

October â€” The EU allowed its member countries to charge the same VAT for ebooks as for paper books.[148]

2019



## Reference

[Nature's Wild Ideas: How the Natural World is Inspiring Scientific Innovation](#)

[How to Use IBM SPSS Statistics: A Step-By-Step Guide to Analysis and Interpretation](#)